

REMARKS/ARGUMENTS

In view of the foregoing amendments and the following remarks, the applicant respectfully submits that the pending claims are not rendered obvious under 35 U.S.C. § 103. Accordingly, it is believed that this application is in condition for allowance. If, however, the Examiner believes that there are any unresolved issues, or believes that some or all of the claims are not in condition for allowance, the applicant respectfully requests that the Examiner contact the undersigned to schedule a telephone Examiner Interview before any further actions on the merits.

The applicant will now address each of the issues raised in the outstanding Office Action.

Objections

Claims 16, 17, 42 and 43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 16 and 17 depend, indirectly, from claim 12, and claims 42 and 43 depend, indirectly, from claim 38. Since, however, base claims 12 and 38, as amended, are allowable over the cited art for the reasons discussed below, these claims have not been rewritten in independent form at this time.

Rejections under 35 U.S.C. § 103

Claims 1-15, 19-41 and 45-49 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over David Comer, Internetworking with TCP/IP, (2000) Prentice Hall (pub) ("the Comer book") and further in view of Sandick, et al., "Internet-Draft Fast Liveness Protocol," (February 2000) ("the Sandick paper"). The applicant respectfully requests that the Examiner reconsider and withdraw this ground of rejection in view of the following.

In rejecting independent claims 1 and 27, the Examiner contends that the Comer book teaches accepting status information, composing a message including the status information, and sending the messages towards a neighbor node. (See Paper No. 20081008, page 3.) Although the Examiner concedes that the Comer book does not disclose including the status information **of at least two different protocols as data within the aggregated message**, the Examiner contends that the list of neighbor interfaces included in a FLIP Advertisement Message described in the Sandick paper teaches including status information of at least two different protocols as data within the aggregated message. The applicant respectfully disagrees.

Embodiments consistent with the claimed invention may be used to provide a "liveness detection mechanism" for quickly detecting a down protocol used by nodes on a network by exchanging messages which include aggregated protocol and/or forwarding liveness ("APFL") status information with neighboring nodes. The APFL status information may contain, for example, the status of the at least two different protocols used by the nodes. This feature provides several advantages. As the specification states:

hello messages [in conventional liveness detection mechanisms] often carry more than just liveness information, and can therefore be fairly large and require non trivial computational effort to process. Consequently, running fast liveness detection between a pair of neighbor nodes, **each running multiple protocols**, can be expensive in terms of communications and computational resources required to communicate and process the frequent, lengthy messages for liveness detection. [Emphasis added.]

(Paragraph [0009] of the present application) These conventional liveness detection mechanisms require separate hello messages for each different protocol run on the node. The ability to send **aggregated protocol status information of multiple protocols** overcomes this issue as follows:

By providing a small number of bits per protocol, which relay a simple set of information (**such as up, down, not reporting, restarting**, etc.), a compact, simple message may be used for **conveying liveness related information**. Since the messages are small **and can aggregate information from more than one protocol, they can be sent frequently**. [Emphasis added.]

(Paragraph [0086] of the present application) As can be appreciated from the foregoing, the status information of at least two different protocols can be aggregated into a single message wherein each of the state of the protocols being run may be set to up, down, not reporting or restarting.

By contrast, the Sandick paper includes a "list of neighbor interfaces that the transmitting device has heard from." (Section 4.2 of the Sandick paper.) The described list is "[a] list of all source IP addresses of all FLIP Advertisements that have been heard on this interface". (Section B.1 of the Sandick paper.) ***This list of neighbor interfaces that the transmitting device has heard from does not indicate the status of the protocols being used by the neighboring nodes.*** Rather, in the Sandick paper, a node receiving a status message from a neighbor node can only infer that status of its own interface with the neighbor node (and, thus, the status of the protocol being used by that interface). Specifically, the Sandick paper provides:

When a device receives a FLIP Advertisement from a neighbor, it lists the neighbor interface in its own FLIP advertisements for that interface. If a device receives an advertisement containing its own interface in one of the neighbor fields and it has listed that neighbor in its own advertisement, a FLIP adjacency is established. If an advertisement containing the receiving device interface has not been received from a neighbor in FLIPAdvertisementDeadInterval seconds, then that neighbor is removed from subsequent advertisements (for that interface) and the adjacency is considered down.

(Section 4.5 of the Sandick paper.) As can be appreciated from the foregoing, even though a FLIP Advertisement message may include a ***list*** of all source IP addresses of all nodes that the transmitting node has heard from, ***the receiver node can only infer the status***

of the protocol being used by its interface with the sending node. That is, the inclusion of source IP addresses in the FLIP Advertisement does not provide the *status* of the source nodes. Thus, the Sandick paper neither teaches, nor makes obvious, accepting *status* information of at least two different protocols (e.g., *which indicates whether the at least two protocols are up, down, not responding, or restarting*) and composing an aggregated message including the status information of the at least two different protocols as data within the aggregated message.

Furthermore, the purported teachings of the Comer book do not compensate for the aforementioned deficiencies of the Sandick paper.

Thus, independent claims 1 and 27 are not rendered obvious by the Comer book and Sandick paper for at least this reason. Independent claims 12, 19, 22, 38 and 45, are similarly not rendered obvious by the Comer book and Sandick paper. Since claims 2-11 directly or indirectly depend from claim 1, since claims 13-15 directly or indirectly depend from claim 12, since claims 20 and 21 depend from claim 19, since claims 23-26 directly or indirectly depend from claim 22, since claims 28-37 directly or indirectly depend from claim 27, since claims 39-41 directly or indirectly depend from claim 38, and since claims 46 and 47 directly or indirectly depend from claim 45, these claims are similarly not rendered obvious by the Comer book and Sandick paper.

Claims 18 and 44 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Comer book and the Sandick paper, further in view of U.S. Patent No.

5,349,642 ("the Kingdon patent"). The applicant respectfully requests that the Examiner reconsider and withdraw this ground of rejection in view of the following.

Claims 18 and 44 depend from claims 12 and 38, respectively. Since the purported teachings of the Kingdon patent do not compensate for the deficiencies of the Comer book and Sandick paper with respect to claims 12 and 38 (discussed above), these claims are not rendered obvious by the Comer book, the Sandick paper and the Kingdon patent, regardless of the purported teachings of the Kingdon patent, and regardless of the presence or absence of an obvious reason to combine these references as proposed by the Examiner.

Claim amendments

Claims 1, 2, 12, 13, 16, 17 and 18 have been amended to clarify that the recited acts are performed using the recited node. In addition, the apparatus claims have been amended to replace means-plus-function elements and to include at least one processor, at least one input, and at least one storage device storing processor-executable instructions which, when executed by one or more processors, perform a method. These amendments are supported, for example, by Figure 6 and paragraphs [0048]-[0050] of the present application.

New claims

New claims 50 and 51 depend from independent claim 1 and new claims 52 and 53 depend from independent claim

12. These claims are supported by original claims 11 and 15 and paragraph [0044] of the present application.

Conclusion

In view of the foregoing amendments and remarks, the applicant respectfully submits that the pending claims are in condition for allowance. Accordingly, the applicant requests that the Examiner pass this application to issue.

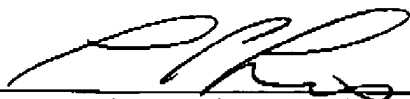
Any arguments made in this amendment pertain **only** to the specific aspects of the invention **claimed**. Any claim amendments or cancellations, and any arguments, are made **without prejudice to, or disclaimer of**, the applicant's right to seek patent protection of any unclaimed (e.g., narrower, broader, different) subject matter, such as by way of a continuation or divisional patent application for example.

Since the applicant's remarks, amendments, and/or filings with respect to the Examiner's objections and/or rejections are sufficient to overcome these objections and/or rejections, the applicant's silence as to assertions by the Examiner in the Office Action and/or to certain facts or conclusions that may be implied by objections and/or rejections in the Office Action (such as, for example, whether a reference constitutes prior art, whether references have been properly combined or modified, whether dependent claims are separately patentable, etc.) is not a concession by the applicant that such assertions and/or implications are accurate, and that all requirements for an objection and/or a rejection have been met. Thus, the applicant reserves

the right to analyze and dispute any such assertions and implications in the future.

Respectfully submitted,

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